APPENDIX G

GUIDELINES FOR LONG-TERM PRESERVATION OF RECORDS

"Records" are documents that are set aside as evidence and protected from alteration or change. All records – but not all documents – have content, structure and context. Storing a record is not enough to capture all three of those elements. The key is to adopt policies, procedures and guidelines to ensure that the information contained in the record is **accessible** and **readable** for the entire retention period and that it is viewed and understood in **context**.

How should you retain records with lengthy retention periods? What should you do with the paper after scanning records? How do you ensure future accessibility and readability of records, especially permanent records? These are a few of the most common questions relating to long-term preservation of records. Following is a summary of some of the issues you should consider before making decisions on long-term preservation of records.

Paper and Electronic Preservation

There is no foolproof, single step for permanent preservation of electronic records. In addition, electronic storage media is inherently unstable, and computer hardware and software become obsolete quickly due to technological obsolescence.

For paper records, *preservation* means placing the document into a managed filing system from which it can be retrieved for the duration of the retention period. For electronic records, this means transferring an electronic document from an operational environment into a managed recordkeeping system **and** renewing, copying to new media or transferring to new systems[1] as needed to ensure accessibility and readability in the appropriate context for the entire retention period.

Long-term preservation of archival information in digital format may **not** be practical because of the rapid obsolescence of computer hardware and software. Preservation of records with long retention periods solely in digital format should be considered **only** if:

1. The value of the data and the benefits of digital preservation are clear and substantial.
2. Preservation in a fixed form such as paper or microfilm is not an option because a digital format is needed to support significant business requirements.
3. Conversion of the data to static form will diminish its value or make it unusable.

Cost

The cost for data migration can be more than 2.5 times the original cost of data creation and capture. For permanent electronic records, data migration **must** be a perpetual – and potentially costly – commitment. Managing electronic records by disposing of obsolete records in accordance with the retention schedule is more cost-effective than buying more electronic storage to migrate everything or losing in a legal proceeding due to poor recordkeeping. Some argue that "storage is cheap." They may not realize the potential cost of unmanaged electronic records in lost productivity, future migrations or legal proceedings.

[1] ***Media renewal*** is copying from one type of storage medium to the same type without any changes to the records. ***Media copying*** is the copying or reformatting of records from one type of storage medium to another, resulting in minor changes to the records because of the way data is recorded to different media and requiring verification by means of comparing a sampling of the old and newly copied records. ***Media transfer*** and ***migration*** refer to a complete change of the file management system upon moving from one software platform or technology to another, requiring bit-by-bit validation of each transferred record.

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Conversion and Migration

Plan to convert electronic documents while newer versions of the software allow backward compatibility; i.e., within several generations of versions.

Any system **must** have the capability of copying, reformatting or transferring records across media and through system technical changes.

Remember that when electronic records are copied or transferred, the content, metadata and audit trails **must** all be preserved.

Plan ahead for what will be involved in converting/migrating specific vital electronic records to new systems or storage media, how the conversion/migration will be tested and when it is to be done. Consider putting together a **written conversion and migration plan** that is reviewed by legal counsel, information technology and official records custodians. Plan on migrating electronic records if:

1. The scheduled destruction date is more than **five years** from the initial installation date or last major upgrade of the hardware or software that is needed to read, process or store the record.

2. The retention period is longer than **10 years** from the date the records were created.

3. The usability will be affected by replacement, upgrades or other changes to the hardware or software before the end of the retention period.

It **may** be cheaper to keep legacy systems running to access and use infrequently referenced records than it is to move (migrate) those records to a new system.

Storage Media

If the retention period is longer than **10 years**, consider the long-term cost and requirements for maintaining the record in electronic format for the entire retention period compared with the cost to keep it in paper or microfilm form.

With reasonable care, good quality **paper** can last for more than 100 years. Absent a disaster, paper deteriorates slowly, leaving time to take action before information is lost. Storage in paper form may sometimes be the cheapest storage solution and may make sense for **low reference records that have retention periods longer than 10 years**.

Microfilm that meets industry standards and has reasonable care can also last more than 100 years. There are warning signs of deterioration and time to recopy before images are lost. Microfilm is eye readable and widely accepted for archival storage of records. It may make sense for **preservation and disaster recovery for low reference records than have retention periods longer than 10 years**.

Without migration, **computer-based records** can be expected to last as little as five years (the average service life of hardware and software required to read and process electronic records) and no more than 20 years. There are no warning signs of impending failure. Digitization of records makes the most sense for **records that are needed frequently, those that are shared by simultaneous users or those requiring ease of access**. An electronic format may not be appropriate for the entire retention period and for long-term archival storage unless a paper or microfilm version is also retained for the entire retention period.

Regardless of the storage media used, **verify the accessibility and readability of the content every 5 to 10 years** to ensure that the data has not been compromised.

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Records Destruction

Whether you retain records in paper, microfilm or electronic form, you **must** have the ability to dispose of records at the end of the records retention period.

You **must** also have the ability to place a hold on records destruction in the event of a legal proceeding **regardless of the records storage format**.

Metadata

To ensure the integrity of electronic records, collect and maintain indexing information and the following types of metadata (information about the records):

1. Information about restrictions on accessibility.
2. Information on how long the record must be kept and what triggers its destruction; i.e., end of year.
3. Security and encryption information.
4. Information documenting all actions; i.e., revisions made, audit trails.
5. Information on the software versions and technical platforms used to create and store the record.
6. Hardware and software documentation manuals created and maintained during installation of a system used to create and store the record.

Storage and Formats

To maintain integrity of the record, preservation **must** be in a recordkeeping system that ensures the integrity of the records and the associated metadata through storage on a non-erasable medium or using controls that provide the same level of protection.

Using formats that are widely used makes it more likely that you will be able to access and read the records if the company that owns the patents on the format goes out of business or stops supporting the format. [As of October 2009, the leading formats are .pdf and .tiff.]

Use storage media that is mainstream, widely used and compliant with industry standards. Avoid being on the "leading edge" or using obsolete technologies.

Quality Controls

Always keep the hard copy (paper or microfilm) sources for imaged records **at least** until the images are verified during the quality control process. **Never** just scan and shred.

Disaster Recovery

You **must** be able to guarantee an ability to support full recovery of records in the event of a disaster.